Soil Surveys

can help you...

USDA NRCS
Natural Resources Conservation Service–Lakewood, Colorado
July 2000

How can soil surveys help you?

Soil surveys available from the **Natural Resources Conservation Service (NRCS)** are intended for many different users. They can help a homebuyer or developer determine soil-related hazards or limitations that affect home sites. They can help a land use planner determine suitability of areas for housing or onsite sewage disposal systems. They can help a farmer estimate the potential crop or forage production of his land. They can be used to determine the suitability and limitations of soil for pipelines, buildings, landfills, recreation areas and many other uses. This pamphlet explains just a few of the ways soil surveys can help land users.

Soil maps are a major reference for land use planning, indicating soil limitations for buildings, recreation, waste disposal and other land uses.

Why are soil data needed?

Many people assume that all soil is more or less alike. They are unaware that great differences in soil properties can occur within even short distances. Soils may be seasonally wet or subject to flooding. It may be shallow to bedrock. It may be too unstable as a foundation for buildings or roads. Very clayey or wet soil is poorly suited to septic tank absorption fields. A high water table makes soil poorly suited for basements or underground installations.

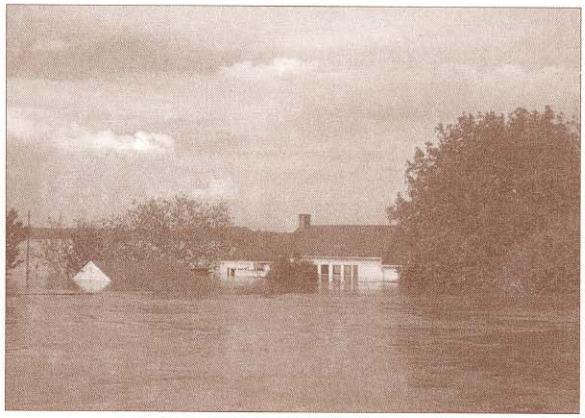
These soil properties and many others that affect land use are given in soil surveys. Each soil survey describes the properties of soil in the county or area surveyed and shows the location of each kind of soil on detailed maps.

Buying Land

Soil surveys can help in evaluating the suitability of a tract of land for the intended use before buying. Where soil maps show that soil-related hazards may damage structures or installations, alternate sites with more favorable soil properties can be selected, or structural designs can be changed to compensate for the hazards. Soil maps and descriptions also can help in planning development in accordance with soil capabilities and limitations.

How can soil surveys help in evaluating areas for houses and other buildings?

Soil properties are a major consideration for all building construction. The range of potential soil-related problems is great. Swelling and shrinking of certain kinds of clayey soil may crack walls and foundations. Flooding or high water tables may flood basements or damage buildings and other installations. Soil that is too clayey or too wet is not suitable for septic tank absorption fields. These and other soil-related problems can be anticipated by using soil surveys.



Flooding and other hazards that affect buildings are indicated in soil surveys.

How can soil surveys determine soil properties that affect construction?

Many soil properties affect construction and maintenance of roads, pipelines, buildings and other structures. These are among the important soil properties described in soil surveys:

- Natural soil drainage
- Permeability
- Infiltration rate
- Flood hazard
- Depth to water table
- Seasonal wetness
- Depth to bedrock, stoniness
- Erodibility
- Acidity and alkalinity
- Load-bearing capacity
- Slope
- Content of sand, silt and clay
- Shrink-swell potential
- Corrosivity
- Soil structure

Soil surveys can help in evaluating routes for roads and pipelines and in anticipating soil-related hazards for building construction. They also help in locating sources of sand and gravel and determining the kind of material in areas to be excavated.

Soil properties that affect highway construction and other extensive projects can be determined from a soil survey.

How can soil surveys help in planning land use?

Soil surveys can help community planners determine the most appropriate areas for urban expansion. Soil surveys show areas that are subject to flooding and describe soil properties that affect septic tank absorption fields. The data can help planners zone flood plains, determine suitability of areas for various uses, and apply soil and water considerations of subdivision regulations and building codes to specific developing areas. Soil surveys can also identify areas of prime agricultural land and areas best suited for recreation, wildlife and open space.

Disposing of Liquid and Solid Waste

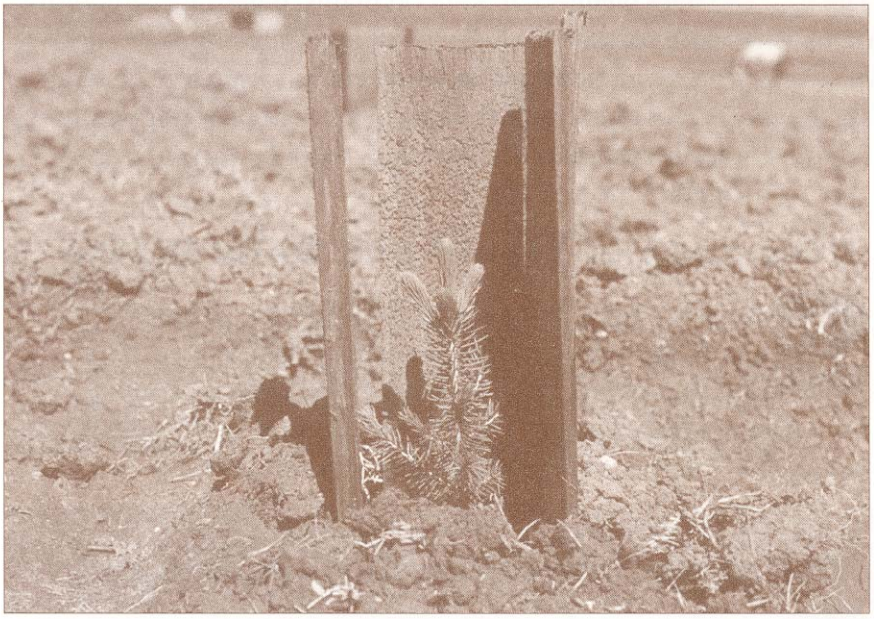
Soil properties affect the function of septic tank absorption fields, sewage lagoons and landfills. Soil surveys help to evaluate areas for such waste disposal systems. They also can help managers of feedlots, poultry-processing plants and similar enterprises in planning disposal of waste into soil.

Managing Farm, Ranch or Woodland

Soil surveys can be used to determine potential tree, crop or forage production of soil on woodland, farm or ranch. Soil data help to plan management and conservation and to appraise the productive capacity and the value of land for these purposes. In areas where forestry, farming or ranching is important to the economy, soil surveys aid in evaluating soil for specific trees, crops or range plants.

Landscaping

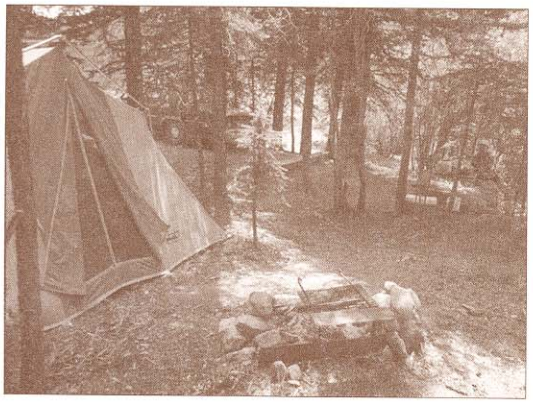
Soil properties are a major consideration in selecting and planting trees, shrubs and grasses for beautification and erosion control. Soil surveys describe soil properties that affect the growth of such plants.



Soil surveys help to determine soil suitability for planting trees and managing areas for commercial tree crops.

How can soil surveys help in selecting areas for recreation facilities?

Land suitable for developing wildlife habitat, hunting areas, fishponds and other recreation facilities can be selected through the use of soil surveys. Soil maps can help in planning the layout and maintenance of parks, dude ranches, ski areas, campsites, picnic areas, golf courses, cabins and other recreation facilities. Soil surveys are also useful in planning the development of land for private recreation.



A soil survey can be used to plan the development of recreation areas according to soil suitability and limitations.

Planning Conservation

Conservation of land and water resources is an important part of all land use. The maps and soil descriptions in soil surveys can help identify specific conservation problems in a given area, and planning measures to reduce erosion, sedimentation, subsidence, slippage, wetness and other hazards.

How can you get a soil survey?

You can call the local **NRCS** office to determine whether a soil survey of the area that interests you is available. If you live in a conservation district, you can discuss soil and land use with a soil conservationist or soil scientist assigned to the district.